

APPENDIX A

The following table summarizes examples of microfluidic components and structures that can be made available in a library for design capture.

Component/ Structure	Brief Description	Reference(s)	Figure Number(s)
ON/OFF Switches	An ON/OFF switch is open in the ON state allowing fluid flow therethrough and is closed in the OFF state to prevent fluid flow therethrough.		
	Pressure-actuated, normally open switch	Present Application 60/282,253	2A-3 7A-7E 8
	Pressure-actuated, normally closed switch	60/282,253	9A-9D
	Vacuum-actuated, normally closed switch	60/282,253	10 & 15A- 15J
	Inverted pyramid pressure amplification switch	60/282,253	39A-39D 40-41
	T-switch	Present Application	13A
Valves	Valves are provided for directing fluid flow.		
	Side-actuated valve	PCT/US00/ 17740	48A-48B
	Unidirectional valve for permitting fluid flow in one direction therethrough	60/282,253	20A-B 21 22 23
Interconnect Bridges	Interconnect bridge having a control channel with tapered element for bridging a fluid channel	Present Application	17B
Vias	Vias provided in one channel for bridging another channel.	Present Application	18B
Tapers	Fluidic taper for facilitating connection between a larger channel and a small channel	Present Application	28
Switchable Flow Arrays	Switchable flow array including fluid passages that can be selectively directed to flow in two perpendicular directions	PCT/US00/ 17740	31A-31D

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Multiplexer	Multiplexer having multiplexed channel flow controllers for directing fluid flow into one or more of a plurality of synthesis channels or chambers in which solid phase synthesis may be performed	PCT/US00/17740	33
Gates or Gate Structures	Fluidic logical gates can be used to perform Boolean functions.		
	Inverter for inverting an input to produce an output	60/282,253	12A
	OR gate	60/282,253	12C
	NOR gate	60/282,253	12E
	AND gate	60/282,253	12G
	NAND gate	Present Application	5A
	Latch/Flip-flop	Present Application	6A 6B
		60/282,253	33
	D-latch	Present Application	7A
Amplifiers	Fluidic pressure amplifier for amplifying pressure	60/282,253	3-4B
Pumps	Fluidic pumps are used for pumping fluid.		
	Pump operating by compression and bending of fluid chamber	60/282,253	17A-B
	Peristaltic pump with multiple control lines for pumping	PCT/US00/17740	24A-24B
	Rotary pump/mixer for mixing and incubating solutions	Present Application	21
Capacitors & Reservoirs	A capacitor or reservoir can be used for storing and releasing pressure.		
	Single-chamber high-pressure reservoir	60/282,253	24
	Two-chamber capacitor	60/282,253	28-29B
	Single-chamber vacuum reservoir	60/282,253	32
Pressure Sources	High pressure source for applying high pressure fluid to load devices	60/282,253	26
Generators	High pressure generator having stages for multiplying output pressure	60/282,253	27
Vacuum Sources	Vacuum source for driving vacuum-actuated devices	60/282,253	30

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Fluid Chambers	Selectively addressable reaction chambers provided along flow lines and in an array for selectively directing fluid flow into one or more of the reaction chambers	PCT/US00/17740	28A-30
Switching Regulators	Switching regulator for performing analog functions	60/282,253	34
Sorting Devices	Sorting device for cell sorting and DNA sizing	PCT/US00/17740 Present Application	36 27-28
Separation Devices	Separation device for perform separation of materials	PCT/US00/17740	43
Cell Pen Structures	Cell pen array for storing materials within a selected, addressable position for ready access	PCT/US00/17740	44A-44D
Cell Cage Structures	Cell cage with pillars that permit opening of cage for transfer of cells	PCT/US00/17740	45A-45B
Cell Grinder Structures	Cell grinder with interdigitated posts that can be closed to crush material therebetween	PCT/US00/17740	46A-46B
Pressure Oscillators	Pressure oscillator for generating pressure oscillation	PCT/US00/17740	47
Mirror Array Structures	With appropriate control circuitry, a microfluidic structure having a light-reflecting membrane may be employed as a digital or analog mirror array.	PCT/US00/17740	38
Refractive Devices	Refractive device having elastomeric material capable of transmitting incident light	PCT/US00/17740	39 40 41